ZAKHAROV, Ye.D.

Parameters of the consecutive crystallization of castings. (MIRA 16:11)
Alium. splavy no.1:122-128 '63.

S/806/62/000/003/005/018

AUTHORS: Fridlyander, I.N., Zakharov, Ye.D., Tigina, L.P.

TITLE: The kinetics of the aging of aluminum alloys of the Al-Cu-Mg system.

SOURCE: Akademiya nauk SSSR. Institut metallurgii. Issledovaniye splavov tsvetnykh metallov, no.3. 1962, 58-61.

TEXT: The paper reports an experimental investigation of the effect of both aging temperature and aging time on the decomposition of a supersaturated, quenched, solid solution in alloys of the Al-Cu-Mg system. The objective of the investigation was to determine the usability of the aging time as an indicator of the time rate of the diffusion flux in an alloy. Four Al-Cu-Mg alloys were tested (compositions tabulated); three of them contained appx. 6.6% Cu+Mg, but in different proportions: 2.1, 1.37, 0.95. The fourth alloy contained also 0.82% Fe, 0.83% Ni, and 0.11% Ti. The alloy was prepared in an electric muffle furnace and cast into a watercooled 280x160x26-mm mold at 680-700°C. The ingots were homogenized for 24 hrs at 480°, milled to 200x150x21 mm, and rolled on a two-roll mill at 420-430°C. First rolling (6-10 passes) reduced the billet thickness to 12-14 mm, second rolling (3-6 passes) to 5-6 mm. Hardness-test specimens were cut, heated in a saltpeter bath to 495°, soaked for 60 min, and water-quenched. This was followed by aging at 160, 180, 200, and 210°C and 30-sec Brinell testing with a load of 1,000 kg on a 10-mm diam ball. The hardness-vs.-aging-time curves show that the solid-solution transformations are accelerated by an increase in aging T; however, the time for

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attainment of the maximum H_B at any one aging T increases with a decrease in the Cu/Mg ratio, while the hardening effectiveness decreases. Inasmuch as all three alloys lie in the α +S phase region, any changes in the aging kinematics are attributable to the S content in the alloy and the Mg content in the α solid solution. As the Cu content decreases, the amount of S phase decreases, which is reflected in a diminishing maximal H_B value and in a shift to the right of the time required to attain the maximum H_B. The Mg saturation of the α solid solution contributes to a slowing-down of the hardening process also, especially at low aging T. A comparison of the first and fourth alloys, similar in all respects except for the presence of Fe, Ni, and Ti in the fourth alloy, illustrates the latter postulate vividly (cf. also Hunsicker, H. J., Symposium on the Age-hardening of Metals. Chicago. 1939, 56). A brief survey of existing literature on the slowdown mechanism attributable to the presence of the Fe and Ni additions is given; unsolved problem areas are outlined, and the need for additional investigations is pointed out. There is one (unnumbered) figure, 2 tables, and 9 references (6 Russian-language Soviet, 1 German, and 2 English-language).

ASSOCIATION: None given.

S/137/62/000/008/036/065
A006/A101

AUTHORS: Fridlyander, I. N., Zakharov, Ye. D.

TITLE: The effect of manganese upon aging of some aluminum alloys

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 8, 1962, 34, abstract 8I209 (In collection: "Deformiruyemyye alyumin. splavy", Moscow, Oborongiz, 1961, 113 - 115)

TEXT: The authors investigated the effect of Mn upon kinetics of aging Al-alloys manufactured from grade 00, Cu and Mg-Al. The heat treating conditions were: 1) Holding at 495°C for 1 hour and quenching from this temperature in cold water; 2) aging at 700°C for 2, 4, 8 and 12 hours. The presence of Mn promotes a substantial increase of the strength of the alloys in freshly quenched state. During the aging process the alloys with Mn are strengthened more rapidly and acquire higher σ_b and σ_s values. The addition of Mn to these alloys entails substantial distortions in the crystal lattice of the solid solution, accelerating separation of Cu, Mg and Si out of the oversaturated solid solution.

[Abstracter's note: Complete translation] T. Rumyantseva

Card 1/1

The effect of manganese on...

mation on the freshly hardened solid solution. There is 1 figure.

V. Stasevich

[Abstracter's note: Complete translation]

Card 2/2

S/123/62/000/013/007/021
A004/A101

AUTHORS: Fridlyander, I. N., Zakharov, Ye. D., Kulakov, V. I.

TITLE: Using cold working to increase the strength of the АКЧ-1 (AKCh-1) alloy

PERIODICAL: Referativnyy zhurnal, Mashinostroyeniye, no. 13, 1962, 28, abstract 13B171 (In collection: "Deformiruyemyye alyumin. splavy". Oborongiz, 1961, 116 - 123)

TEXT: The authors investigated the effect of cold deformation on the aging kinetics of the AKCh-1 aluminum alloy, having a composition of (in %): 2.11 Cu, 1.83 Mg, 1.21 Ni, 1.36 Fe, 0.082 Ti, the rest being Al, using specimens which, after the casting, were subjected to diffusion annealing at 520°C for 24 hours. Then the ingots were pressed, rolled at 350 - 400°C into strips of 6 mm thickness and were then subjected to hardening with subsequent natural ageing in the course of 30 days or rolling immediately after hardening with a degree of deformation of 10 and 20%. After cold working, the specimens were subjected to artificial ageing at 20, 170, 180, 190, 200 and 210°C. It was found that cold working con-

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Using cold working to...

siderably cuts the holding time of the AKCh-1 alloy, which is necessary to obtain the maximum hardness. The maximum mechanical properties are obtained for the non-coldhardened alloy after ageing at 185°C in the course of 48 hours, while this is attained with cold worked specimens after 6 - 10 hours ageing at the same temperature. By cold working in the freshly hardened state it is possible to increase the strength of die-forgings from the AKCh-1 alloy by 5 - 7 kg/mm^2 at room temperature and by 4 - 5 kg/mm^2 at 175°C. In this case σ_b may attain 42 - 43 kg/mm^2 during short-time tests. Holding for 100 hours at 175°C causes the strength of cold-worked specimens to decrease to magnitudes which were attained with this alloy without cold deformation after hardening (down to 34 - 40 kg/mm^2). It is recommended to use cold working for parts of not too intricate shape with smooth transitions. For parts operating at temperatures near 175°C it is not recommended to use cold working for protracted periods. There are 5 figures.

E. Spivak

[Abstracter's note: Complete translation]

S/137/62/000/005/046/150
A006/A101

AUTHOR: Zakharov, Ye. D.

TITLE: Regularities in solidification of ingots

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 5, 1962, 30, abstract 5G195 ("Deformiruyemyye alyumin. splavy", Moscow, Oborongiz, 1961, 214 - 228)

TEXT: Formulae and equations are derived which make it possible, with the aid of calculations, to control the process of ingot solidification and to produce improved casting conditions.

G. Svodtseva

[Abstracter's note: Complete translation]

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35023
S/689/61/000/000/014/030
D205/D303

18.1210 (2402)

AUTHORS: Fridlyander, I.N., and Zakharov, Ye.D.

TITLE: Influence of manganese on the ageing of certain aluminum alloys

SOURCE: Fridlyander, I.N., V.I. Dobatkin, and Ye.D. Zakharov, eds. Deformiruyemyye alyuminiyevyye splavy; sbornik statey. Moscow, 1961, 113 - 115

TEXT: This paper is concerned with the influence of Mn on the kinetics of ageing of alloys in the Al-Cu-Mg system. Composition ranging from 5.7 to 5.65 % Cu, 1.57 - 3.96 % Mg and 0.8 - 1.21 % Mn were smelted and homogenized at 480°C for 24 hours. The thermal treatment consisted of quenching from 495°C after 1 hour's heating at this temperature and ageing at 200°C over 2, 4, 8 and 12 hours. Non-aged and aged specimens were tested. Analysis of the data shows that Mn increased the strength in the quenched state, which is probably connected with the press-effect. Ageing-strengthening is more rapid in alloys with Mn and higher strength limits and yield points are achie-

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ved in this case. The influence of Mn on the ageing kinetics is very similar to the action of cold-working in the freshly hardened state. It is assumed that the introduction of Mn into Al-Cu-Mg alloys leads to a considerable distortion in the crystal lattice of the solid solution, accelerating the separation of Cu, Mg and Si from the supersaturated solid solution. There are 1 figure and 1 table.

35024

S/689/61/000/000/013/030
D205/D303

18.1210 (2408)

AUTHORS: Fridlyander, I.N., Zakharov, Ye.D., and Pulakov, V.I.

TITLE: Application of cold-working to increase the strength of AK4-1 (AK4-1) alloy drop-forged articles

SOURCE: Fridlyander, I.N., V.I. Dobatkin, and Ye.D. Zakharov, eds. Deformiruyemyye alyuminiyevyye splavy; sbornik statey. Moscow, 1961, 116 - 125

TEXT: This is an investigation of the influence of cold working, which is the only means of improving the strength characteristics of Al alloys besides heat treatment, on the kinetics of ageing of the AK4-1 alloy. The prepared ingots had the following composition: 2.11 % Cu, 1.83 % Mg, 1.21 % Ni, 1.36 % Fe, 0.082 % Ti, the rest Al of the AB000 (AV000) grade. The ingots were homogenized at 520°C over 24 hours and pressed to strips of 10 x 40 mm cross-section. They were rolled at 350 - 400°C to 6 mm thickness. One part of the strips was hardened and naturally aged during 30 days, whilst the remainder were hardened and cold-worked by rolling with 10 and 20 % deforma-

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S/689/61/000/000/018/038
D205/D305

Application of cold-working to ...

tion, at room temperature, and aged artificially at 20, 170, 180, 190, 200 and 210°C. Brinell hardness was measured during the ageing process. Rivetting of the AK4-1 alloy was investigated by the forging of cylindrical specimens of 65 mm diameter and 100 mm high, of the following composition: 2.19 % Cu; 1.61 % Mg; 1.2 % Fe; 1.2 % Ni; 0.06 % Ti; 0.07 % Mn; 0.24 % Si; 0.1 % Zn, the rest Al. The forging was performed at 20, 100 and 200°C. It was shown that cold-working in the freshly hardened state can increase the strength of the drop-forged details by 5 - 7 kg/mm^2 at room temperature and by 4 - 5 kg/mm^2 at 175°C, raising the tensile strength at this temperature up to 42 - 43 kg/mm^2. For details of simple form and without sharp edges which are intended to withstand short periods at 175°C, cold-working is recommended. For details intended to work for long periods at 175°C the use of cold working treatment is not recommended. There are 5 figures.

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S/689/61/000/000/029/03[illegible]
D205/D303

AUTHOR: Zakharov, Ye.D.

TITLE: Laws governing the solidification of ingots

SOURCE: Fridlyander, I.N., V.I. Dobatkin, and Ye.D. Zakharov, eds. Deformiruyemyye alyuminiyevyye splavy; sbornik statey. Moscow, 1961, 214 - 226

TEXT: On the basis of Stefan's problem of freezing of wet ground (the so-called rule of the square root) a series of equations is derived for the solidification process: $X = K\sqrt{\tau}$, where K - solidification coefficient, τ - time of solidification in seconds and X - thickness of frozen layer in cm. By examination of the physical meaning of the coefficient K, the author obtained

$$K = \sqrt{\frac{\lambda(T_{fr} - T_{surf})}{\gamma[q + \frac{C}{2}(T_{fr} - T_{surf})]}} \qquad (1)$$

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Laws governing the solidification of ...

where T_{fr} - temperature of freezing; T_{surf} - temperature of the crust 's surface, λ - thermal conductivity of the crust, q - latent ht. of freezing and C - heat capacity [Abstractor's note: Meaning of γ not given]. The rate of the freezing in a cylindrical mould was found to be

$$V_{fr} = \frac{K^2R^2}{2xR^2 - 3x^2R + x^3} \qquad (7)$$

where x - the thickness of the layer frozen after τ seconds and R - the mould diameter. A correction factor for the case when a clearance is formed between the mould and the freezing ingot is also derived. The equation for the downward movement of a point on the crystallisation surface during continuous casting is

$$y = \frac{V_{cast}\gamma[q + C(\frac{T_{fr} - T_{surf}}{2})]}{\lambda(T_{fr} - T_{surf})}(x^2 - \frac{x^3}{R} + \frac{x^4}{4R^2}), \qquad (13")$$

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Laws governing the solidification of ... S/689/61/000/000/029/030 D205/D303

where V_{cast} - the rate of rise of the melt level. Eq. (13") is the equation of the cavity contour of a cylindrical ingot without taking into consideration the formation of a clearance between the ingot and the mould. A correction is also derived for the case with a clearance. There are 10 figures.

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FRIDLYANDER, I.N., doktor tekhn. nauk, red.; DOBATKIN, V.I., doktor tekhn. nauk, red.; ZAKHAROV, Ye.D., kand. tekhn. nauk, red.; BAZHENOV, M.F., inzh., retsenzent; MAKOVSKIY, G.M., inzh., red.; VINOGRADSKAYA, E.I., red. izd-va; GARNUKHINA, L.A., tekhn. red.

[Malleable aluminum alloys] Deformiruemye aliuminievye splavy; sbornik statei. Moskva, Gos. nauchno-tekhn. izd-vo Oborongiz, 1961. 234 p. (MIRA 15:1)

(Aluminum alloys)

SOV/24-58-4-37/39

AUTHOR: Galyayev, B.B.

TITLE: Conference on Crystallization of Metals (Soveshchaniye po kristallizatsii metallov)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh Nauk, 1958, Nr 4, pp 153 - 155 (USSR)

ABSTRACT: This conference was held at the Institut mashinovedeniya AN SSSR (Institute of Mechanical Engineering of the Ac.Sc. USSR) on June 28-31, 1958. About 400 people participated and the participants included specialists in the fields of foundry, metallurgy, crystallography, physics, welding, heat, physical chemistry, mathematical physics and other related subjects. In addition to Soviet participants, foreign visitors included Professor D. Csiki (East Germany) and K.V. Chvorinov (Czechoslovakia). This conference on crystallization of metals was the fourth conference relating to the general problem of the theory of foundry processes.

Crystallization of Non-ferrous Metals.

I.I. Novikov - in their paper "Investigation of the Crystallization and the Properties of Non-ferrous Metals Under Conditions of Applying Pressure", presented results of experiments on pressing castings which crystallise under pressure from all sides and plotst pressure within a wide range of specific loads. The results of the investigation provide material for improving existing methods of applying pressure to influence the crystallisation of alloys. The influence of the conditions of crystallisation on the casting and mechanical properties of aluminium alloys, at normal and at elevated temperatures, was discussed in the papers of I.F. Kolobnev and A.G. Spasskiy. The results of investigations of the conditions of crystallisation of aluminium alloys during continuous casting were presented in the paper of Yu.A. [illegible]ov, L.L. Petrovskiy and D.Ye. Chalyenko

Card6/10 [illegible] the features of crystallisation of various non-ferrous alloys and the physico-chemical phenomena accompanying this process.

Crystallisation of Metals in the Welding Bath. The following papers were read: B.A. Movchan - "Investigation of the Features of the Microscopic Chemical Non-uniformity in Alloys"; G.L. Petrov - "Crystallisation and Chemical Non-uniformity in Weld Joints"; M.Kh. Shorshorov and V.S. Sedykh - "Influence of Non-uniformities of Crystallisation in the Weld Bath on the Formation of Hot Cracks".

Crystallisation of Metals in an Ultrasonics Field. The following papers were read: Member of the Ac.Sc. Ukrainian SSR B.N. Sirota, Ye.L. Lakshtanov and N.N. Malyavenko - "Crystallisation of Metals and Alloys in an Ultrasonics Field"; I.I. Fomin - "Influence of Elastic Oscillations on the Processes of Crystallisation and the Technological Properties of Alloys"; L.L. Shur and A.A. Yerokhin - "Effect of Ultrasonics on Crystallising Metal in the Weld Bath".

Card9/10

ZAKHAROV, Ye.F., aspirant

Improvement of the design of passenger cars. Vest. TSNII MPS 22 no.8:30-33 '63. (MIRA 17:2)

VERSHINSKIY, S.V., doktor tekhn.nauk, prof.; MEYSNER, B.A., kand.tekhn.nauk; ZAKHAROV, Ye.F., inzh.

Strength of the body of electric train cars. Vest.TSNII MPS 22 no.6:19-21 '63. (MIRA 16:10)

ZAKHAROV, Ye.F., aspirant

Strength of the end walls of passenger cars. Vest. TSNII MPS 23 no.8:31-33 '64 (MIRA 18:2)

ZAKHAROV, Ye.F., inzh.

Impact conditions between passenger cars. Vest. TSNII MPS 24 no.5: 17-18 '65. (MIRA 18:9)

1. Kalininskiy filial Vsesoyuznogo nauchno-issledovatel'skogo instituta vagonostroyeniya.

ZAKHAROV, Ye.I.; SOLOV'YEV, V.I.

Cancer of the cardia and of the abdominal esophagus following gastrectomy for peptic ulcer. Khirurgiia, no.8:74 Ag '54. (MLRA 7:11)

1. Iz kafedry obshchey khirurgii Krymskogo meditsinskogo instituta imeni I.V.Stalina.

(PEPTIC ULCER, surgery,
gastrectomy, postop. cardial & esophageal cancer)
(STOMACH, neoplasms,
cardial & esophageal cancer after gastrectomy for peptic ulcer)
(ESOPHAGUS, neoplasms,
cardial & esophageal cancer after gastrectomy for peptic ulcer)

ZAKHAROV, Ye.I., professor (Simferopol', bul'var Lenina, 5/7, d.2, kv.1)

Closing intestinal fistulas by evagination. Vest.khir. 75 no.1: 36-39 Ja-F '55. (MLRA 8:4)

1. Iz kliniki obshchey khirurgii (zav. prof. Ye.I.Zakharov) Krymskogo meditsinskogo instituta im. I.V.Stalina.

(INTESTINES, fistula,
surg., evagination technic)
(FISTULA,
intestines, evagination technic)

ZAKHAROV, Ye.I., professor (Simferopol' bul'var Lenina, d.5, kv.7)

Displacement of the cardiac orifice in its benign stenosis. Nov. khir.arkh. no.4:27-31 Jl-Ag '57. (MIRA 10:11)

1. Kafedra gospital'noy khirurgii (zav. - prof. Ye.I.Zakharov) Krymskogo meditsinskogo instituta.
(STOMACH--DISEASES)

ZAKHAROV, Ye.I., professor

Intestinal plastic surgery in stomach resection; 75 years of Billroth's operation (1881-1956) [with summary in English] Khirurgiia 33 no.3:16-20 Mr '57. (MLRA 10:6)

1. Iz gospital'noy khirurgicheskoy kliniki (zav. - prof. Ye.I. Zakharov) lechebnogo fakul'teta Krymskogo meditsinskogo instituta (dir. - dotsent S.I.Georgiyevskiy)

(GASTRECTOMY
Billroth's method (Rus))

ZAKHAROV, Ye.I., professor (Simferopol', bul'var Lenina, d.5/7)

Inverse position of the viscera and one-stage resection of cancer of the middle third of the esophagus. Vest.khir. 78 no.2:110-112 F '57. (MLRA 10:3)

1. Iz gospital'noy khirurgicheskoy kliniki (zaveduyushchiy - professor Ye.I.Zakharov) lechebnogo fakul'teta Krymskogo meditsinskogo instituta.

(SITUS INVERSUS, compl.
cancer of esophagus, surg., with one-stage resection of esophageal middle third (Rus))
(ESOPHAGUS, neoplasms
of middle third, surg., one-stage resection in patient with situs inversus (Rus))

ZAKHAROV, Ye.I.

Pancreaticoduodenectomy in cancer of the pancreatic head.
Nov.khir.arkh. no.1:68 Ja-F '58 (MIRA 11:11)

1. Kafedra gospital'noy khirurgii Krymskogo meditsinskogo instituta.
(PANCREAS--SURGERY)
(DUODENUM--SURGERY)

L 1577-66 EWT(m)

AM5009846

BOOK EXPLOITATION

UR/
66.062.054061.5

Karpacheva, S. M.; Zakharov, Ye. I.; Raginskiy, L. S.; Muratov, V. M.

Pulsating extractors (Pul'siruyushchiye ekstraktory) Moscow, Atomizdat, 1964. 0298 p. illus., biblio. 2,500 copies printed.

TOPIC TAGS: chemical separation, mechanical separation, solvent extraction, chemical laboratory apparatus

PURPOSE AND COVERAGE: The liquid extraction method finds a widespread application in chemical engineering. By-products are extracted from waste liquids, pure medicaments and metals are obtained by extraction methods. The development of efficient extractors is of great importance. The most simple and economic extractors used today, the packed or plate towers are of low efficiency. In these type of apparatus the only energy securing the movement and contact of reagents is that resulting from the density difference. With the introduction of an additional energy (mechanical mixers, air or vapor ejectors) the extraction is possible both in vertical and horizontal extractors. Rotary-discs, pulsed-columns and mixer-settler extractors operate with the introduction of mechanical and pulsating mixing. The book deals with problems encountered in the construction and operation of extractors.

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KARPACHEVA, S.M.; ZAKHAROV, Ye.I.; KISELEVA, L.F.

Laws governing the movement of the disperse phase in a pulsed packed column. Zhur. prikl. khim. 37 no.12:2668-2677 D '64. (MIRA 18:3)

KARPACHEVA, S.M., doktor khimich. nauk; CHEMARIN, N.G., kand.tekhn.nauk; BYCHKOV, A.Ye., inzh.; ZAKHAROV, Ye.I., inzh.; DEVYATKIN, V.I., inzh.; ZHDANOV, B.V., inzh.

Study of the operation of a pulsating extraction sieve plate column. Khim. i neft. mashinostr. no.1:24-27 Ja '65.
(MIRA 18:3)

ZAKHAROV, Ye.I. (Volgograd, Krasnopiterskaya ul. d. 31, kv. 36)

Treatment of open injuries to the tendon of Achilles. Ortop.,travm. i protez. 25 no.2:69-70 F '64. (MIRA 18:1)

1. Iz travmatologicheskogo otdeleniya (zav. - Ye.I.Zakharov) mediko-sanitarnoy chasti (glavnyy vrach - N.I.Zakharov) Volgogradskogo traktornogo zavoda.

ZAKHAROV, Ye.I. (Simferopol', Bul'var Lenina, d. 5/7, kv.2) ; NAZAREVSKIY, N.G.

Surgery in cardiac echinococcosis. Grudn. khir. 4 no.5:106-107 S-O'62 (MIRA 17:3)

1. Iz gospital'noy khirurgicheskoy kliniki (zav. - prof. Ye.I. Zakharov) lechebnogo fakul'teta Krymskogo meditsinskogo instituta.

ZAKHAROV, Ye.I., (Simferopol', bul'var Lenina, d.5/7)

Alloplasty for an esophageal diverticulum. Grud.khir. 2 no.2 92-94 Mr-Ap'60. (MIRA 16:7)

1. Iz gospital'noy khirirgicheskoy kliniki (zav.-prof. Ye.I. Zakharov) Krymskogo meditsinskogo instituta.
(PROSTHESIS) (ESOPHAGUS--SURGERY)

KARPACHEVA, S.M., doktor khimicheskikh nauk; MEDVEDEV, S.F., inzh.; ZAKHAROV, Ye.I., inzh.; BELOV, Yu.A., inzh.

Effect of pulsation on the operation of packed columns. Khim.mashinostr. no.2:14-17 Mr-Ap '63. (MIRA 16:4)

(Packed towers)

ZAKHAROV, Ye. I., prof; LAVROV, O. O., aspirant

Plastic surgery using the small intestine in repeated interventions for diseases of the stomach surgically treated previously. Nov. khir. arkh. no.2:43-47 '62. (MIRA 15:2)

1. Gospital'naya khirurgicheskaya klinika (zav. - prof. Ye. I. Zakharov) Lechebnogo fakul'teta Krymskogo meditsinskogo instituta.

(STOMACH—SURGERY) (INTESTINES—TRANSPLANTATION)

ZAKHAROV, Ye. I.; SOLOV'YEV, V. I.

Transposition of the cardia in the surgical treatment of cardiospasm. Grud. khir. no.2:51-55 '62. (MIRA 15:4)

1. Iz gospital'noy khirurgicheskoy kliniki (zav. - prof. Ye. I. Zakharov) lechebnogo fakul'teta Krymskogo meditsinskogo instituta.

(CARDIOSPASM) (STOMACH—SURGERY)

ZAKHAROV, Ye.I., prof.

Jejunogastroplasty in cancer and polyposis of the stomach. Khirurgiia no.8:56-62 Ag '62. (MIRA 15:8)

1. Iz gospital'noy khirurgicheskoy kliniki (zav. - prof. Ye.I. Zakharov) Krymskogo meditsinskogo instituta.
(STOMACH--CANCER) (STOMACH--SURGERY) (JEJUNUM--SURGERY)

ZAKHAROV, Ye.I., prof.; LAVROV, O.O., aspirant

Enteroplasty with the small intestine in the treatment of the dumping syndrome following gastrectomy and Bilroth II subtotal gastric resection. Khirurgiia no.8:45-49 Ag '61. (MIRA 15:5)

1. Iz gospital'noy khirurgicheskoy kliniki (zav. - prof. Ye.I. Zakharov) lechebnogo fakul'teta Krymskogo meditsinskogo instituta.
(STOMACH--SURGERY) (INTESTINES--TRANSPLANTATION)

ZAKHAROV, Ye.I., prof.; NAZAREVSKIY, N.G., dotsent

Comments on A.B.Kheifits' letter on "Radical operations in echinococcosis". Nov. khir. arkh. no.4:119-121 Jl-Ag '60. (MIRA 15:2)
(HYDATIDS) (SURGERY) (KHEIFITS, A.B.)

ZAKHAROV, Yevgeniy Illarionovich, prof.; ZAKHAROV, Aleksandr Yevgen'yevich; BEREZOV, Yu.Ye., red.; BEL'CHIKOVA, Yu.S., tekhn. red.

[Use of the small intestine in plastic surgery in gastrectomy and resection of the stomach] Tonkokishechnaia plastika pri gastrektomii i rezektsii zheludka. Moskva, Medgiz, 1962. 166 p. (MIRA 15:8)

(INTESTINES—TRANSPLANTATION)
(STOMACH—SURGERY)

ZAKHAROV, Ye.I., prof.

Formation of an artificial esophagus in the posterior mediastinum. Khirurgiia no.10:72-75 '61. (MIRA 14:10)

1. Iz gospital'noy khirurgicheskoy kliniki (zav. - prof. Ye.I. Zakharov) lechebnogo fakul'teta Krymskogo meditsinskogo instituta.
(ESOPHAGUS--SURGERY) (MEDIASTINUM--SURGERY)

ZAKHAROV, Ye.I., prof. (Simferopol' bul'var Lenina d.5/7); SIDORENKO, V.D.

Rectal administration of hydrolysin following an operation on the stomach or esophagus. Nov. khir. arkh. no.2:35-38 Mr-Ap '60. (MIRA 14:11)

1. Kafedra gospital'noy khirurgii (zav. - prof. Ye.I.Zakharov) lechebnogo fakul'teta Krymskogo meditsinskogo instituta.
(PROTEINS) (RECTUM, MEDICATION BY)

BASKIN, A.A.; ZAKHAROV, Ye.I.; PETROV, K.I.; RZHEKHINA, Ye.I.

Spectral determination of impurities in niobium. Zhur.anal.khim. 16 no.5:627-630 S-O '61. (MIRA 14:9)
(Niobium--Spectra)

5.5310

28285
S/075/61/016/005/006/010
B117/B101

AUTHORS: Baskin, A. A., Zakharov, Ye. I., Petrov, K. I., and Rzhekhina, Ye. I.

TITLE: Spectroscopic determination of impurities in niobium

PERIODICAL: Zhurnal analiticheskoy khimii, v. 16, no. 5, 1961, 627 - 630

TEXT: The authors developed (a) a method of simultaneously determining iron, silicon, titanium, tantalum, and lead in niobium by spectrum analysis, and (b) a method of obtaining high-purity niobium pentoxide for producing standard specimens. The spectra concerned were excited in a d-c arc. Niobium pentoxide intermixed with coal dust in a ratio of 2:1 was used. The arc amperage, which was 6.5 a in the first 15 seconds of combustion, was increased to 12 a. A further increase to 15 a was found to be unsuitable because of a resulting intense background. Conditions for spectral excitation were chosen on the basis of burning-out curves determined experimentally. In the case of the impurities considered here, and when coal dust has been added, these curves display two maxima which are presumably due to carbides forming while the arc is burning. The impurities evaporate more or less completely within two minutes. The spectra were taken with a large

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Spectroscopic determination of...

Hilger-type spectrograph on diapositives with a sensitivity of 0.25 ГОСТ (GOST) units, and on "spectrometric type-1" plates with a sensitivity of 0.7 GOST units, after an exposure of 2 minutes. The slit was illuminated by a single-lens condenser. The reproducibility of determinations was improved by using internal standards. In determining silicon and iron, cobalt in a concentration of $8 \cdot 10^{-2}$% served as an internal standard. Titanium and tantalum were determined by a comparison with niobium lines. Analytic pairs of lines and the concentration ranges considered are presented in Table 1. Iron, silicon, titanium, and lead may be determined with a sensitivity of $1 \cdot 10^{-3}$%, and tantalum with $3 \cdot 10^{-2}$%. The reproducibility of individual determinations characterized by the mean square error is 10 % for tantalum and titanium, 11% for silicon, 13% for lead, and 16% for iron. The reliability of the method suggested was substantiated by an analysis of specimens containing certain admixtures. Neither the sensitivity nor the accuracy of determinations are impaired by the presence of iron, silicon, lead, and calcium in amounts up to 1%. As regards the method suggested for obtaining high-purity niobium pentoxide, the separation of niobium and tantalum is based on the different degree to which their fluoride complexes can be extracted with cyclohexanone. Niobium is separated from titanium

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Spectroscopic determination of...

and other admixtures by converting niobic acid into ammonium peroxyniobate $(NH_4)_3NbO_8$ with hydrogen peroxide and ammonia in the presence of Komplexon III. Impurities remain in the solution under these conditions. It takes a four-fold extraction to remove tantalum from a solution containing 200 g of niobium. Ammonium peroxyniobate decomposes at 70 - 72°C to form niobium pentoxide. The latter contains less than $1 \cdot 10^{-4}$% of tantalum and not more than $1 \cdot 10^{-3}$% of titanium, iron, silicon, and lead. Standard samples on the basis of niobium pentoxide are prepared by adding calculated amounts of tantalum, iron, silicon, and lead oxides, as well as cobalt oxide as an internal standard. There are 2 figures, 3 tables, and 7 references: 5 Sovi and 2 non-Soviet. The reference to the English-language publication reads as follows: Ref. 4: J. R. Varning, K. B. Higbie, J. T. Grace, D. F. Speece, H. L. Gilbert, Industr. and Engng. Chem. 46, 644 (1954).

SUBMITTED: March 11, 1960

Card 3/4

ZAKHAROV, Ye.I.

Replacement on the resected stomach with the small intestine; on the 75th anniversary of Billroth II operation (1885-1960). Khirurgiia 36 no.4:3-8 Ap '60. (MIRA 13:12)
(STOMACH—SURGERY) (INTESTINES—SURGERY)

ZAKHAROV, Ye.I., prof.

Formation of a new cardial opening in the surgical treatment of cardiospasm. Vest.khir. 85 no.9:135-137 S '60.

(MKRA 13:11)

1. Iz gospital'noy khirurgicheskoy kliniki (zav. - prof. Ye.I. Zakharov) lechebnogo fakul'teta Krymskogo meditsinskogo instituta.

(CARDIOSPASM)

USSR/General Problems of Pathology - Tumors. Human Tumors. U.

Abs Jour : Ref Zhur - Biol., No 2, 1959, 8357

Author : Zakharov, Ye.I., Sidorenko, V.D.

Inst : Crimean Medical Institute

Title : Hemangiomas of the Face

Orig Pub : Tr. Krymsk. med. in-ta, 1957, 18, 497-502

Abstract : No abstract.

Card 1/1

KARPACHEVA, S.M., doktor khim. nauk; MEDVEDEV, S.F., inzh.; SENIN, P.T., inzh.; ZAKHAROV, Ye.I., inzh.

Efficiency of packed extraction towers and sectional columns. Khim. mash. no.4:10-13 Jl-Ag '59. (MIRA 12:12)
(Packed towers)

ZAKHAROV, Ye.I., prof. (Simferopol', bul'var Lenina, d.5/7); NAZAREVSKIY, N.G.

Radical surgery for a hydatid cyst of the lungs. Nov.khir. arkh. no.1:45-49 Ja-F '59. (MIRA 12:6)

1. Kafedra obshchey khirurgii (zav. - prof. Ye.I.Zakharov) Krymskogo meditsinskogo instituta.
(LUNGS--HYDATIDS)

ZAKHAROV, Ye.I.; LIPIS, L.V.; PETROV, K.I.

Spectrum determinations of bismuth, cadmium, tin, lead and antimony impurities in tantalum. Zhur.anal.khim. 14 no.1: 135-136 Ja-F '59. (MIRA 12:4)
(Tantalum--Spectra)

5(2), 5(4)
AUTHORS: Zakharov, Ye. I., Lipis, L. V., Petrov, K. I. SOV/75-14-1-28/32

TITLE: The Spectrographic Determination of Impurities of Bismuth, Cadmium, Tin, Lead, and Antimony in Tantalum (Spektral'noye opredeleniye primesey vismuta, kadmiya, olova, svintsa i sur'my v tantale)

PERIODICAL: Zhurnal analiticheskoy khimii, 1959, Vol 14, Nr 1, pp 135-136 (USSR)

ABSTRACT: Tantalum of a high degree of purity must not contain more than 1.10^{-4}% of each of the following impurities: Bismuth, cadmium, tin, lead, antimony. For the quantitative determination of these impurities a method having a sensitivity of 3.10^{-5}% is therefore necessary. In order to avoid the difficulties arising in the spectral analysis of metallic tantalum, the latter is best converted into the oxide, whereby also the impurities go over into the corresponding oxides. Tantalum pentoxide, contrary to the oxides of the 5 impurities to be determined, is relatively difficultly volatile. By employing the vaporization method (Refs 1,2) the necessary sensitivity of impurity determination in tantalum can thus be attained.

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which sensitivity is higher than that attained when using a direct current arc (Ref 3). Oxidation of tantalum was carried out by heating for 1.5 to 2 hours in a muffle furnace at 600 - 700°. Investigations showed that the optimum temperature for the evaporization of the admixed oxides is 1400°. At this temperature the impurities evaporate completely, whereas the main quantity (Ta_2O_5) practically does not evaporate at all.

Investigations concerning optimum temperature were carried out in the range of between 900 and 1600°. Copper is suited as material for the electrodes on which the evaporated impurities are again condensed. Also spectrochemically pure carbon may be used, but in this case determination is not so accurate. Vaporization of impurities from Ta_2O_5 was brought about in carbon crucibles. In order to obtain reproducible results the method of internal standards was employed. Thallium may be recommended as internal standard. The pairs of lines used for the spectrometric determination of impurities in tantalum pentoxide are given by a table. For the excitation of the spectra of impurities precipitated on the electrodes a con-

The Spectrographic Determination of Impurities of Bismuth, Cadmium, Tin, Lead, and Antimony in Tantalum SOV/75-14-1-28/32

centrated spark discharge of a generator IG-2 was used. Plotting of the lines was carried out by means of a spectrograph ISP-22. The sensitivity of this method in the case of bismuth and cadmium is 1.10^{-5}%, in that of lead and tin 3.10^{-5}%, and in that of antimony it amounts to 1.10^{-4}%. The reproducibility of the method, characterized by the mean square deviation, is 8% for Bi, 10% for Pb and Sb, and 11% for Cd and Sn. There are 3 tables and 3 Soviet references.

SUBMITTED: September 18, 1957

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L 39688-65 EWT(d)/EWT(m)/EWP(w)/EPF(c)/EWA(d)/EWP(t)/EWP(v)/EWP(k)/T/
EWP(z)/EWP(b)/EWA(h) Pf-4/Peb MJW/JD/ZB/EM
ACCESSION NR: AP5008390 S/0148/65/000/003/0157/0160

AUTHOR: Andreyev, Yu. G.; Zakharov, Ye. K.; Kidin, I. N.; Lizunov, V. I.; Maksimova, O. V.; Shtremel', M. A.

TITLE: Heat treatment by electrical heating of high-strength steel

SOURCE: IVUZ. Chernaya metallurgiya, no. 3, 1965, 157-160

TOPIC TAGS: high strength steel, electrical heating, superstrength steel, steel heating, low alloy steel, complex alloy steel, steel heat treatment, conventional heating, steel strength, steel ductility, steel hardness

ABSTRACT: Conventional heat treatment of large welded superstrength shells presents difficulties since the shells require protection against oxidation and decarburization. Therefore, an attempt has been made to use rapid-rate electric heating without a protective atmosphere or vacuum. Specimens of cold-rolled, annealed VKS-1 (42Kh2GSNM) superstrength steel, 3.3 x 9.2 x 320 mm, were resistance heated with an alternating current of 50 cps to temperatures of up to 2500 at a rate of 75C/sec and air cooled at a rate varying from

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ACCESSION NR: AP5008390

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50 to 80C/sec. The resulting steel structure and properties were compared with those obtained with conventional heat treatment (austenitizing at 940C for 40 min in a vacuum of 10^{-2} mm Hg followed by air cooling). It was found that the surface microhardness was 70 H_{200} lower than the core microhardness in specimens electrically heated to 1100C, as compared to 120 H_{200} in those conventionally heat treated; but in both cases the decarburization extended only to a depth of 0.04 mm. The hardened specimens were tempered in air at 200—600C for 1 hr (at 300C, for up to 4 hr). No significant difference in the microstructure of electrically and conventionally heat treated specimens was observed. Electrically heated (to 1100C) specimens, however, had a mean grain diameter of 8 μ, as compared with 11 μ in conventionally heat treated specimens. The hardness obtained by conventional hardening from 940C can be achieved by electrical heating to 1100C. Specimens electrically heated at a rate of 75C/sec to 1100C, air cooled, and tempered at 300C for 4 hr had a tensile strength of 192 kg/mm^2, an elongation of 3.4%, a reduction of area of 34%, and a bend angle of 33°, compared to 195 kg/mm^2, 3.4%, 33%, and 26° in conventionally heat treated steel. There are two groups of martensitic steels with a tensile strength of up to

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200 kg/mm^2: The VKS-1 is a comparatively low-alloy steel which contains only 0.07% V and 0.50% Mo and acquires a high strength with tempering below the temper brittleness range. For steels of this group, the use of electrical heating has definite advantages. Steels of the second group contain 1—2% Mo and less than 0.5% V and require tempering at about 500C. Electrical heat treatment of a typical steel of this group, 40Kh5SM1F (Vascojet 1000) steel containing 0.43% V and 1.27% Mo, sharply increased the embrittlement in the temper brittleness range and produced a strength 10—30 kg/mm^2 lower than conventional heat treatment. Orig. art. has: 2 figures and 1 table. [MS]

ASSOCIATION: Moskovskiy institut stali i splavov (Moscow Institute for Steel and Alloys)

SUBMITTED: 02Jul64 ENCL: 00 SUB CODE: MM, IE

NO REF SOV: 002 OTHER: 003 ATD PRESS: 3229

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L 13052-65 EWT(m)/EWA(d)/EWP(t)/EWP(b) MJW/JD/RS/JT/MLK

ACCESSION NR: AT4046849 S/0000/64/000/000/0243/0246

AUTHOR: Doronin, I. V.; Zakharov, Ye. K.; Kidin, I. N.

TITLE: Dependence of the strength on rate of heating for Armco iron and 1Kh18N9T and EI-925 steels at high temperatures

SOURCE: AN SSSR. Nauchnyy sovet po probleme zharoprochnykh splavov. Issledovaniya staley i splavov (Studies on steels and alloys). Moscow, Izd-vo Nauka, 1964, 243-246

TOPIC TAGS: steel strength, steel annealing, steel cold working/Armco iron, 1Kh18N9T steel, EI-925 steel

ABSTRACT: A vertical tensile-stress testing machine, developed at the Laboratoriya metallofizicheskikh problem termicheskoy obrabotki Moskovskogo instituta stali i splavov (Laboratory of metallophysical problems of thermal treatment, Moscow Institute of Steel and Alloys), was employed in high-temperature tests of annealed Armco iron and both annealed and cold-worked 1Kh18N9T(a) and EI-925(b) steels in an attempt to bring the test conditions closer to those actually experienced by performing materials than can be attained with the use of standard methods. Wire samples 1.5 mm in diameter and 120 mm long were heated at rates of 50, 500 and 2000C/sec. by passing a 50 cps AC current to the

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L 13052-65
ACCESSION NR: AT4046849

point of rupture at 2.5, 5.0, 10.0, 15.0, 20.0, and 22.5 kg/mm^2 loads for Armco iron and (a), and at 3.75, 15, 22.5, and 30 kg/mm^2 loads for (b). The temperature and elongation were tape-recorded by an MPO-2 oscillograph, with a 60 μ-thick chromel-alumel thermocouple, and a differential extensometer-recorder, sensitive to 0.01% elongations, was used to measure small deformations. The tests yielded a rather complex and ununiform data pattern, from which it may be concluded: 1) that the greater the rate of heating, the greater the temperature of rupture and the temperature at which an elongation of 0.5% is reached in Armco iron; 2) that at high rates of heating (~200C/sec.) the temperature of 0.5% elongation is higher for annealed (a) samples than for cold-worked (a) samples; and 3) that aging and the effect of "autostrengthening" are more pronounced in (b). The data are extensively discussed. Orig. art. has: 4 figures and 1 table.

ASSOCIATION: None

SUBMITTED: 16Jun64 ENCL: 00 SUB CODE: MM

NO REF SOV: 000 OTHER: 000

Card 2/2

S/180/62/000/005/008/011
E040/E435

AUTHORS: Zakharov, Ye.K., Livshits, B.G. (Moscow)

TITLE: Phase composition diagram of cobalt-chromium-titanium alloys

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye tekhnicheskikh nauk. Metallurgiya i toplivo, no.5, 1962, 143-150

TEXT: Due to numerous discrepancies in the data reported so far, a re-examination was made of the binary Co-Ti system (30% Ti) at temperatures up to 1500°C and a modified phase equilibrium diagram plotted. The Co-Cr binary phase equilibrium diagram used in studies of the ternary system was that reported by A.R.Elsea, A.B.Westermann and G.K.Manning (Metals Technology, v.14, no.4, 1948, 13-24). An analysis of the equilibrium conditions in the Co-Cr-Ti system was followed by plotting the liquidus and solidus curves of the Co corner of the Co-Cr-Ti alloys and of the low and high temperature parts of the same ternary system. Special attention was paid to polymorphic and magnetic transformations (Curie point) and their dependence on temperature. The intersection of the surface of allotropic

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transformation and of the Curie point with the surface of limited solubility was investigated by thermomagnetic and dilatometric techniques and the results are plotted graphically for Cr and Ti contents up to 20% by wt. There are 5 figures.

SUBMITTED: December 23, 1961

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20254

189200 1454 1045 1618

S/148/60/000/011/011/015
A161/A030

AUTHORS: Zakharov, Ye. K., Livshits, B. G.

TITLE: Investigation of transformations in the cobalt-chromium--titanium system

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Chernaya metallurgiya no. 11, 1960, 105 - 112

TEXT: The work is the continuation of a study of the Co-Cr-Ti equilibrium diagram; solid state equilibrium data determinded at 1050, 950 and 750°C (Ref. 1: B. G. Livshits, Ye. D. Khorin. Zhurnal neorganicheskoy khimii, v. 3, no. 3. 1958; Ref. 2: P. I. Kripyakevich, Ya. D. Khorin. Nauchnyye doklady vysshey shkoly. Metallurgiya, 1958, No.1) had to be complemented. The platinum-platinorhodium thermocouple in an aluminum oxide hood used in this experiment series had a high degree of accuracy. The allotropic transformation was investigated by dilatometric and magnetic methods; the Curie points were determined at the same time. The cobalt alloys under study contained up to 60% Cr and up to 35 % Ti. The experiment results are shown in the diagram (Figure 1) that includes a new phase,

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S/148/60/000/011/011/015
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Investigation of transformation in ...

ξ, revealed beyond the Ti solubility limit in alpha and beta Co. This intermetallic compound seemed to have a structure resembling the Ni_3Ti compound described in (Ref 10: F. Laves, H. J. Wallbaum. Zschr.f.Kristallographie v.101, 1939, p. 78, and Ref. 11: A. Taylor, R. W. Floyd. Acta cristallographica, 1950, 3, No. 4, p. 285) and Co_3Mo and Co_3W found by M. M. Babich, Ye. N. Kislyakova and Ya. S. Umanskiy in 1938 (Ref. 12: ZhTF, 1938 No. 2, v. 8). A ternary intermetallic compound was revealed also in the ternary system, Co_4Cr_2Ti (or χ-phase) (Ref. 1), and it had to be determined if it was a stable chemical compound or not. The information includes the diagrams prepared in experiments and a detailed discussion of observations. The χ-phase proved unstable and was formed by peritetic reaction in 1150 - - 1200°. The two-phase state revealed at the end of crystallization separated into two three-phase $[\beta + \xi + \chi + \beta]$, $\xi + \chi + (Co, Cr)_2Ti]$ and two two-phase states $[\beta + \xi$, $\xi + (Co, Cr)_2Ti]$. The stated effect of Cr and Ti on the temperature of magnetic (Θ) and allotropic (A_c and A_r) transformations is shown in four graphs (Figure 4). Alloys adjoining the Co-Ti side of the composition triangle in Co - ξ interval and containing 15 - 20 % Cr include a component analogous with the binary quasi-eutectoid α-Co+ξ, With a higher Cr content in ternary alloys, no decomposition was observed; Cr

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additions raised the α-Co $\rightarrow$ β-Co transformation temperature. The allotropic $\delta \rightarrow \sigma$ transformation observed in Co-Cr alloys in 1310 - 1260° (45 - 50 % Cr) was observed in ternary alloys as well. The thermic stop in 1280 - - 1270° stated in alloys 60 % Cr - Co_2Ti and 55 % Cr - Co_2Ti at addition of 6 % Ti corresponds with the allotropic $\delta \rightarrow \sigma$ transition. Magnetic transformation occurred both above and below the A_c point, i.e., in the alpha and in the beta phase. This indicates that solid state equilibrium is difficult to reach in temperatures below 600°. There are 4 figures and 13 references: 6 Soviet and 7 non-Soviet bloc. Two English language publications read as follows: (Ref. 8) A. Elsea, A. Westermann, G. Manning, Metals Technology, 15, No. 4, 1948, 13 - 24; (Ref. 11) A. Taylor, R. W. Floyd, Acta cristallographica, 1950, 3, No. 4, p. 285.

ASSOCIATION: Moskovskiy institut stali (Moscow Steel Institute)

SUBMITTED: March 29, 1960.

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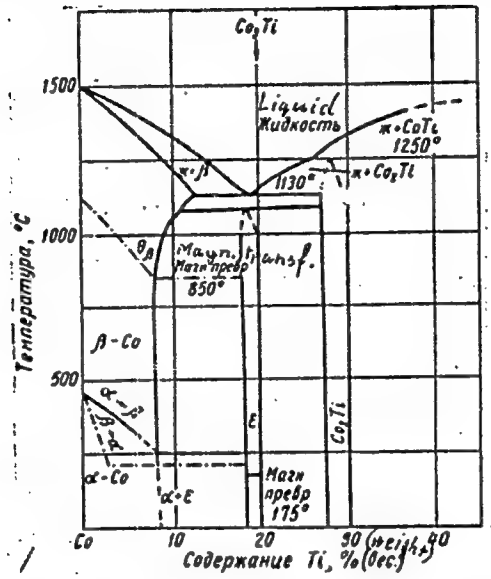
Investigation of transformation in ....

Figure 1:



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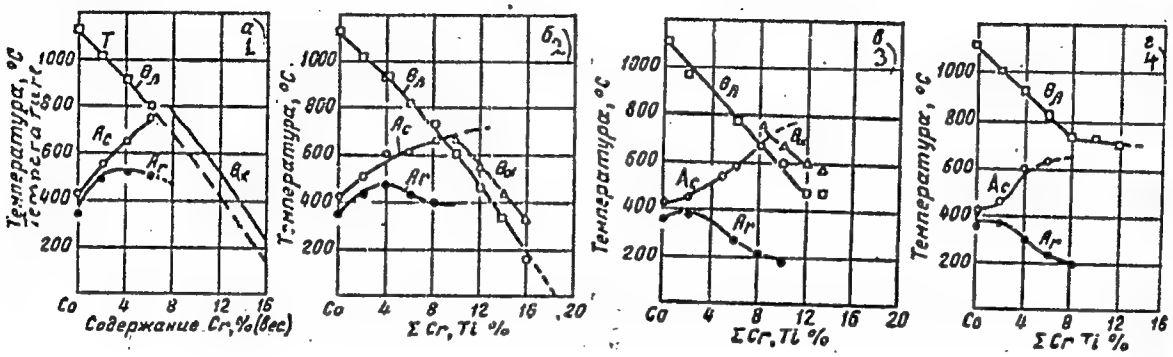
Investigation of transformation in ....

Figure 4:



Card 5/5

ZAKHAROV, Ye.K. (Moskva); LIVSHITS, B.G.(Moskva)

Equilibrium diagram of the system cobalt - chromium - titanium.
Izv. AN SSSR.Otd.tekh.nauk. Met. i topl. no.5:143-150 S-O'62.
(MIRA 15:10)

(Cobalt-chromium-titanium alloys—Metallography)
(Phase rule and equilibrium)

85810

18 8100 1138, 1413, 1454

S/148/60/000/003/014/018
A161/A029

AUTHORS: Zakharov, Ye.K.; Livshits, B.G.

TITLE: Allotropic and Magnetic Transformations in Cobalt-Chrome-Titanium Alloys

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. - Chernaya metallurgiya, 1960, No. 3, pp. 125 - 130

TEXT: Allotropy in the Co-Cr-Ti alloys investigated was determined by measuring the magnetization of the alloys during heating and cooling in weak magnetic fields, using an improved Akulov AAT-50 (AAG-50) anisometer with a more sensitive suspension on longer springs. This anisometer shows a 350 - 400mm shift on the scale in 1.5 m distance during measurements on a 35 mm long specimen of 3 mm in diameter and a 150 - 200 oersted outer magnetic field. The position of the light spot (shift) could be reproduced with ±1 mm accuracy. The growth of magnetization with allotropic transformation is clearly seen on levelled curve portions. The improved anisometer is insensitive to building vibration and traffic in close vicinity to the premises. Curie points were found with sufficient accuracy in the 20-1,150°C range. The interdependence of Curie points and the alloy compositions was found. The Curie points dropped in alloys with Cr and

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S/148/60/000/003/014/018
A161/A029

Allotropic and Magnetic Transformations in Cobalt-Chrome-Titanium Alloys

Ti; binary Co-Cr alloys with over 18-19% Cr became fully non-ferromagnetic at room temperature. Some alloys had two Curie points, which indicates a high tendency to overheating and overcooling. The solubility of Ti in Co was stated to be about 8% at 850°C and to drop with decreasing temperature. This nearly fits the value of 7.2% found by Koester (Ref. 5), but is far from the value of 20% found by Livshits and Khorin (Ref. 7). Microphotographs confirmed the magnetic measurement results: beginning heterogeneity was found in a structure with 9% Ti, clear eutectic in the case of 12% Ti; Co-Ti with less than 4% Ti had martensite structure with Co in α-and β-phases. Eutectoid decomposition was observed at more than 8% Ti content. No sign of martensite or eutectic was revealed in structures with 4--8% Ti, and it appears that these processes are inhibited in this Ti-content range. In ternary alloys with Cr:Ti=1 the structures sequence was analogous, and the total solubility of Cr and Ti at 720°C was 8% (4% Cr and 4% Ti). The high difference of data obtained compared with Reference 7 will be discussed later. There are 5 figures and 7 references: 2 Soviet, 3 German, 2 English.

ASSOCIATION: Moskovskiy institut stali (Moscow Steel Institute)

SUBMITTED: February 27, 1959
Card 2/2

ZAKHAROV, YE. K.

4E2c

3

Investigation of heterogeneous carbon concentration of steel after high-frequency hardening. I. N. Kidin, S. N. Kryukov, and Ye. K. Zakharov. *Primenenie Radioaktiv. Izotopov v Met.* (Moscow Metallurgizdat) 1955, No. 34, 83 ... *Referat. Zhur., Met.* 1956, No. 1601.—C^{14} was introduced in the solid state into steel 20 (0.21% C) by heating ... with ... of $BaCO_3$. Samples were then heated by high-frequency current at 30°/sec. to 723–1300° and quenched in water. Microradiographs, taken from samples, were used to construct photometric curves of C distribution. It was found that sufficiently complete leveling of C concn. was achieved only at 1100°, when C concn. in the middle of former ferrite grain reached 85% of steel C content.

V. N. Bezinarski

ZAKHAROV, Ye.K.; LIVSHITS, B.G.

Investigating transformations in the system cobalt - chromium - titanium. Izv. vys. ucheb. zav.; chern. met. no. 11:105-112 '60. (MIRA 13:12)

1. Moskovskiy institut stali.
(Cobalt-chromium-titanium alloys--Metallography)
(Phase rule and equilibrium)

ZAKHAROV, Ye.K.

Determining points of melting and solidification of Co-Cr-Ti alloys by optical methods. Nauch.dokl.vys.shkoly; met. no.1: 239-243 '59. (MIRA 12:5)

1. Moskovskiy institut stali.
(Cobalt-chromium-titanium alloys--Testing)
(Photoelectric measurements)

ZAKHAROV, Ye.K.; LIVSHITS, B.G.

Allotropic and magnetic transformations in cobalt-chromium-titanium alloys. Izv.vys.ucheb.zav.; chern.met. no.3:125-130 '60. (MIRA 13:4)

1. Moskovskiy institut stali.
(Cobalt-chromium-titanium alloys--Metallography)

18(6) SOV/163-59-1-46/50

AUTHOR: Zakharov, Ye. K.

TITLE: Determination of the Points of Fusion and of Freezing of Co - Cr - Ti - Alloys by Means of the Optical Method (Opredeleniye tochek plavleniya i zatverdevaniya splavov Co - Cr - Ti - opticheskim metodom)

PERIODICAL: Nauchnyye doklady vysshey shkoly. Metallurgiya, 1959, Nr 1, pp 239-243 (USSR)

ABSTRACT: This paper gives an account of the development of a method of determining the points of fusion and of freezing od alloys on a cobalt basis. It operates with induction heating in a vacuum or in a protective atmosphere and with photoelectric pyrometers. The experimental procedure is described. A special apparatus, the schematical array of which is presented, was built for these experiments. Corrections taking into account the difference between the radiation and the absorption capability of the alloys and the absorption in interposed media were made in the recording of the heating and cooling curves. Previous to the determination of the actual temperature curves a calibration curve was recorded of 5 alloys and of pure cobalt. Heating and cooling curves were taken of 40 alloys of the system Co - Cr - Ti. Four vertical

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Determination of the Points of Fusion and of Freezing of Co - Cr - Ti - Alloys by Means of the Optical Method

sections were constructed at the melting temperature and at a ratio of Cr : Ti = 0.125, 1.0, 2.0, and 6.5. In all pseudobinary sections there appear single-phase domains of different size and domains of alloys with eutectic crystallization.-There are 4 figures and 5 references, 4 of which are Soviet.

ASSOCIATION: Moskovskiy institut stali
(Moscow Steel Institute)

SUBMITTED: June 26, 1958

L 24412-65 EPA(s)-2/ENT(m)/EPF(n)-2/EWA(d)/EWP(t)/EWP(z)/EPA(bb)-2/EWP(b) Pf-4/Pt-10/Pu-4 IJP(c)/ASD(f)-2/ASD(m)-3 MJW/JD/HW/JG/MLK

ACCESSION NR: AT4046828 S/0000/64/000/000/0118/0120

AUTHOR: Yezhov, I. A.; Zakharov, Ye. K.; Kidin, I. N. B+1

TITLE: Investigation of the rupture life of cold-strained tungsten and its alloy with molybdenum at temperatures above 1400C

SOURCE: AN SSSR. Nauchny*y sovet po problema zharoprochny*kh splavov. Issledovaniya staley i splavov (Studies on steels and alloys). Moscow, Izd-vo Nauka, 1964, 118-120

TOPIC TAGS: tungsten, VRN tungsten molybdenum alloy, VM50 alloy rupture life, high temperature rupture life, refractory VM50 alloy, VM50 alloy ductility

ABSTRACT: VRN tungsten and a VM50 alloy (a substitutional-solid solution containing 50 wt% W and 50 wt% Mo and with a solidus temperature of 2800C) were prepared by the powder metallurgy method, warm drawn with a 99% reduction to wires 1.0 and 0.8 mm in diameter, respectively, and subjected to a stress-rupture test at temperatures ranging from 1400 to 2800C for VRN and from 1100 to 2400C for the

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L 24412-65

ACCESSION NR: AT4046828

VM50 alloy. Specimens were tested in a vacuum of 10^{-4} mm Hg and heated at a rate of 100C/sec; by varying the applied stress, the rupture life was varied from 1 to 100 min. Test results showed that the 10-min rupture strength of the VM50 alloy is 4—1 kg/mm^2 lower than that of VRN tungsten. The former, however, is more ductile. This desirable combination of strength and ductility makes possible the use of the VM50 alloy as a high-temperature construction material. Orig. art. has: 2 figures.

ASSOCIATION: none

SUBMITTED: 16Jun64 ENCL: 00 SUB CODE: MM

NO REF SOV: 000 OTHER: 003 ATD PRESS: 3133

Card 2/2

L 22507-65 EWT(m)/EWA(d)/T/EWP(t)/EWP(b) ASD(a)-5/ASD(f)-3/ASD(m)-3/
AS(mp)-2 JD/JW/MLK

ACCESSION NR: AT4046817 S/0000/64/000/000/0057/0062

AUTHOR: Zakharov, Ye. K.; Kidin, I.N.; Khayutin, S.G.

TITLE: Stress relaxation during the rapid heating of a metal

SOURCE: AN SSSR. Nauchnyy sovet po probleme zharoprochnykh splavov. Issledovaniya staley i splavov (Studies on steels and alloys). Moscow, Izd-vo Nauka, 1964, 57-62

TOPIC TAGS: stress relaxation, elastic deformation, plastic deformation, alloy elasticity, Maxwell equation, nichrome alloy, activation energy, alloy recrystallization

ABSTRACT: Stress relaxation was studied in hardened, cold-worked and annealed nichrome. The relaxation curves of annealed nichrome reveal a continuous increase in relaxation speed with increased temperature, particularly between 400 and 500C. There are two stages of relaxation in annealed nichrome; low-temperature relaxation with an activation energy of 850 cal/mole, and high-temperature relation with an activation energy of 7500 cal/mole. These energy values are low because, during rapid heating, only those processes requiring a minimum activation temperature can play a role. The relaxation curves of hardened samples show that from room temperature to 100C the relaxation speed is increased, from 200-300C, the relaxation speed falls off to zero, and above 300C, the relaxation speed quickly increases. During the heating of cold-worked nichrome, relaxation is

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ACCESSION NR: AT4046817

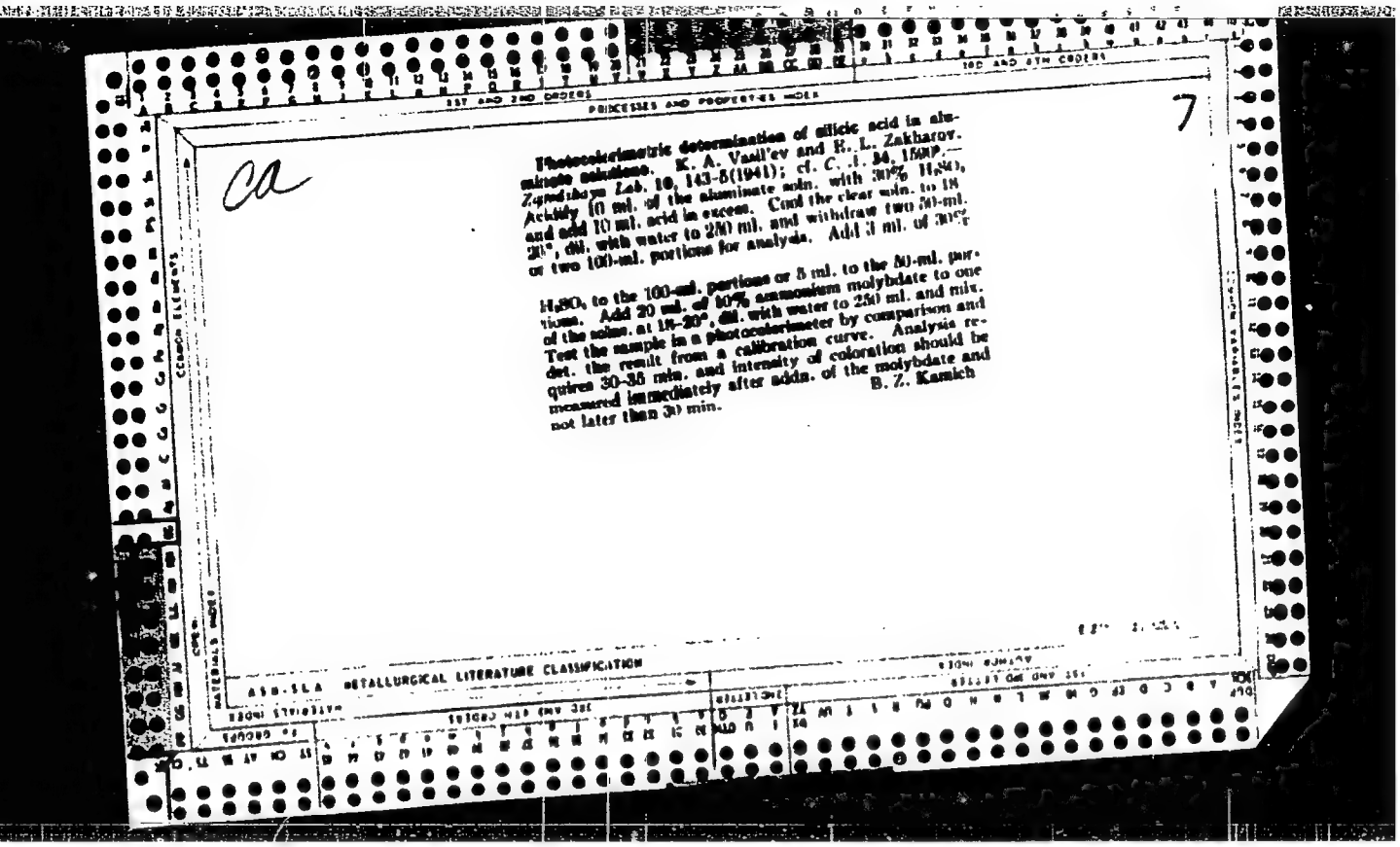
initially more rapid than in hardened and annealed samples. Afterwards, the speed is sharply decreased, but above 600C, the values are increased by 100-200%. The heating speed of cold worked nichrome has little effect on relaxation. The processes of recrystallization and order-disorder transformation occur with enormous speed in both hardened and cold-worked alloys, and are realized to an essentially equal degree at all the investigated heating speeds. Orig. art. has: 3 figures and 13 formulas.

ASSOCIATION: None

SUBMITTED: 16Jun64 ENCL: 00 SUB CODE: MM

NO REF SOV: 002 OTHER: 000

Card 2/2



Photocolorimetric determination of silicic acid in aluminate solutions. K. A. Vasil'ev and E. L. Zakharov. Zavodskaya Lab. 10, 143-5(1941); cf. C. A. 34, 1580⁹. Acidify 10 ml. of the aluminate soln. with 30% H_2SO_4, and add 10 ml. acid in excess. Cool the clear soln. to 18-20°, dil. with water to 200 ml. and withdraw two 50-ml. or two 100-ml. portions for analysis. Add 3 ml. of 30% H_2SO_4 to the 100-ml. portions or 5 ml. to the 50-ml. portions. Add 20 ml. of 10% ammonium molybdate to one of the solns. at 18-20°, dil. with water to 250 ml. and mix. Test the sample in a photocolorimeter by comparison and det. the result from a calibration curve. Analysis requires 30-35 min. and intensity of coloration should be measured immediately after addn. of the molybdate and not later than 30 min.

B. Z. Kamich

ZAKHAROV, YE. L.

Category: USSR/Analytical Chemistry - Analysis of inorganic substances. G-2

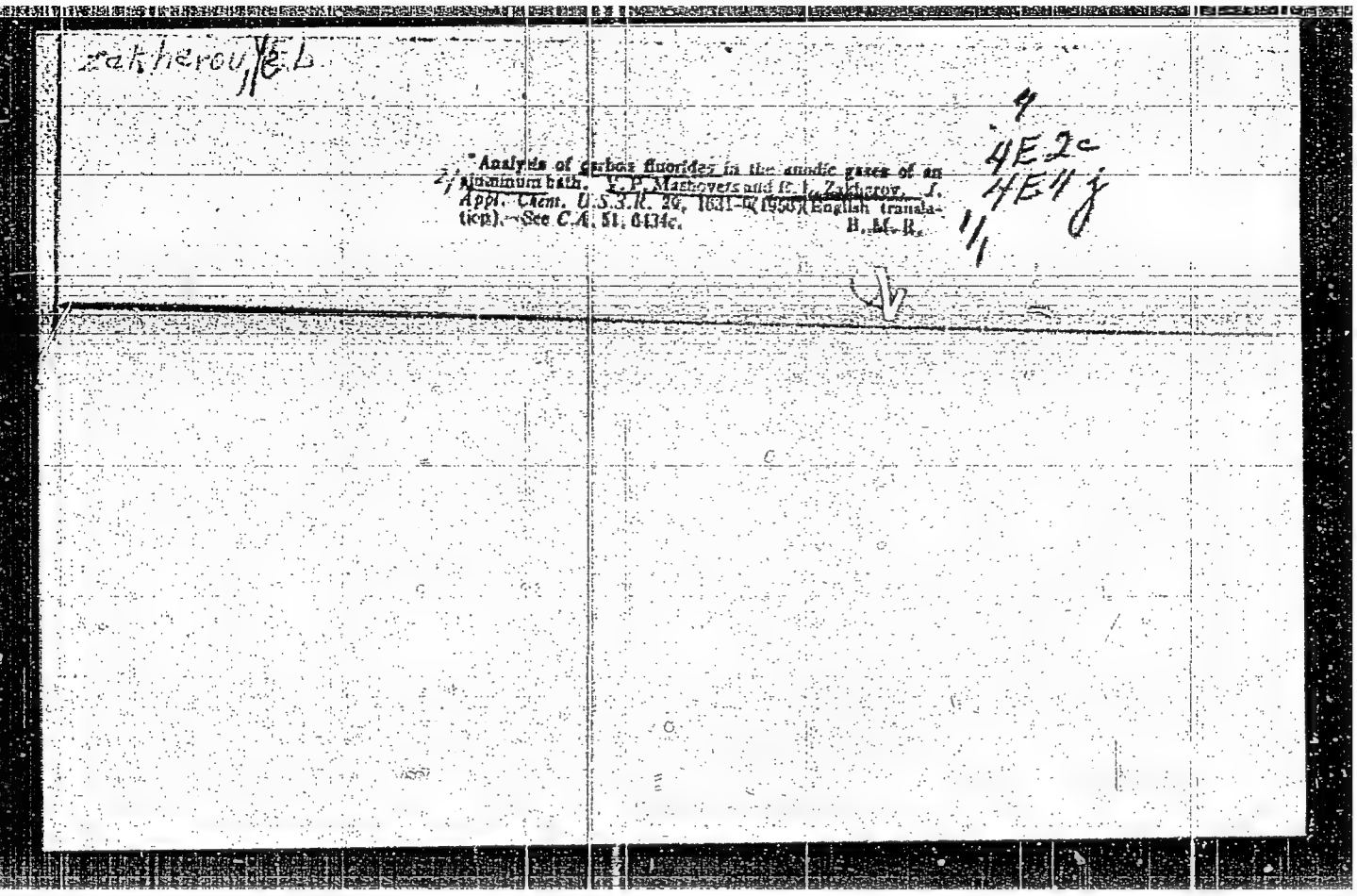
Abs Jour: Referat Zhur-Khimiya, No 9, 1957, 31040

Author : Mashovets V. P., Zakharov Ye. L.
Inst : not given
Title : Analytic Determination of Carbon Fluorides in Anodic Gases of an Aluminum Cell

Orig Pub: Zh. prikl. khimii, 1956, 29, No 10, 1512-1521

Abstract: The method of determination of carbon fluorides in the gases is based on decomposition of the fluorides with water vapor in the presence of activated Al_2O_3 and SiO_2 (at 700-800°) followed by absorption of CO_2; CO is burned over CuO at 300-350° and the resulting CO_2 is absorbed in alkaline solution of pyrogallol. The method is applicable in the separation of CF from higher fluorides. The method described is more sensitive and yield better reproducible results than the fluoride method. It was found that anodic gases of an Al-cell having fired anodes, do

Card : 1/2



Zakharov, E. L.

4
4E2c
4E11j

Analysis of carbon fluorides in the anodic gases of an aluminum bath. V. P. Mashovets and E. L. Zakharov. J. Appl. Chem. U.S.S.R. 26, 1031-6 (1953) (English translation). See C.A. 51, 6434c.

B.M.-R.

137-58-6-13911

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 6, p 385 (USSR)

AUTHOR: Zakharov, Ye.L.

TITLE: Determination of Oxygen and Hydrogen Contents in Titanium by the Vacuum-melting Method (Opredeleniye soderzhaniya kisloroda i vodoroda v titane metodom vakuum-plavleniya)

PERIODICAL: Byul. tsvetn. metallurgii, 1957, Nr 14, pp 27-33

ABSTRACT: The apparatus for the determination of O_2 and H_2 in metallic Ti by the vacuum-melting method is described. The specimen tested is melted at 1900°C in an 8-10-kw induction furnace. The analysis is based on a measurement of the pressure at a constant volume after fractional distillation of the gaseous mixture at low temperatures. For specimens containing 0.2-0.3 O_2 and H_2 the extraction requires 15-40 min; the analysis of the evolved gases requires 20-30 min. Precision of the method for O_2 is ±1% and for H_2 5-10% (relative). Bibliography: 18 A.S. references. 1. Titanium--Analysis 2. Hydrogen--Determination 3. Oxygen--Determination 4. Induction heating--Applications

Card 1/1

VINOGRADSKIY, V.F., kand. tekhn. nauk; ZAKHAROV, Ye.N., nauchn. red.; POPOV, N.V., red.

[Vacuum planing of scantling parts in continuous multiple-line processing on automatic lines] Vakuumnoe bazirovanie bruskovykh detalei pri mnogopotochnom sposobe obrabotki na avtomaticheskikh liniiakh. Moskva, TSentr. nauchno-issl. in-t informatsii i tekhniko-ekon. issledovanii po lesnoi, tselliulozno-bumazhnoi, derevoobrabatyvaiushchei promyshl. i lesnomu khoz., 1964. 23 p. (MIRA 18:5)

34974
S/080/62/035/002/014/022
D204/D302

11.9200

AUTHORS: Petrov, A. D., Zakharov, Ye. P., Zadorozhnyy, N. A. and Ponomarenko, V. A.

TITLE: Synthesis of organosilicon monomers containing nitrile groups

PERIODICAL: Zhurnal prikladnoy khimii, v. 35, no. 2, 1962, 385-389

TEXT: The authors studied the catalytic effects of bis(ß-cyanoethyl)-cyanamide (I), dimethylaminoacetonitrile (II) and dimethylaminoproionizrile (III) on the addition of unsaturated nitriles to trichlorosilane. Compounds II and III were found to be most effective, giving 60% yields of the substituted products (cyanoalcyl trichlorosilanes). Identification of the latter by infrared spectroscopy proved unsuccessful owing to the great similarity of the spectra. Addition reactions of Cl_3SiH to  -CN and acrylonitrile with the above catalysts, as well as in the presence of H_2PtCl_6 and benzoyl or tert.-butyl peroxides were studied. The

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last 3 catalysts proved less effective. The additions of Cl_3SiH, CH_3SiHCl_2, $C_2H_5SiHCl_2$, $(CH_3)(C_2H_5)$ SiHCl and $(C_2H_5)_3$ SiH to CH_2 = = $CHCH_2CH_2CN$ were also investigated in the presence of H_2PtCl_6. 50 - 80% yields were obtained. Physical characteristics of the products which are considered to be of interest for the production of silicone oils, are given together with a summary of the experimental procedure. There are 3 tables and 8 references: 3 Soviet-bloc and 5 non-Soviet-bloc. The 4 most recent references to the English-language publications read as follows: J. V. Jex and J. E. McMahon, U.S. Patents 2,908,699, 2,908,700 and 2,908,701, Ch.A. 2169e (1960); J. C. Saam and J. L. Speier, J. Org. Chem., 24, 427, (1959); T. C. Williams, R. A. Pike and F. Fekete, Ind. Eng. Chem., 51, 939, (1959); C. E. Reed, Plast. World, 16, 8, (1958).

SUBMITTED: April 24, 1961

Card 2/2

RZHONDKOVSKIY, R.P., dotsent; SINOPAL'NIKOV, K.G., dotsent; SAKHAROV, N.M.; GRIN'KO, N.K.; ZAKHAROV, Ye.P.; KHADZHIKOV, R.N.; LESNYKH, V.A.

Problems of orogeny. Ugol' 40 no.12:19-24 D '65.
(MIRA 18:12)

1. Gornyy fakul'tet Permskogo politekhnicheskogo instituta. (for Rzhondkovskiy, Sinopal'nikov). 2. Kadiyevskiy gorodskoy komitet Kommunisticheskoy partii Ukrainy (for Sakharov). 3. Kombinat Luganskugol' (for Grin'ko, Zakharov). 4. Kadiyevskiy filial Kommunarskogo gorno-metallurgicheskogo instituta (for Khadzhikov, Lesnykh).

PETROV, A.D.; ZAKHAROV, Ye.P.

Synthesis of alkylbenzenes according to the Grignard-Wurtz reaction with substitution of a hydrocarbon solvent for the ether. Izv.vys.ucheb.zav.; khim.i khim.tekh. 2 no.3: 384-389 '59. (MIRA 13:8)

1. Moskovskiy khimiko-tekhnologicheskiy institut imeni D.I.Mendeleyeva, kafedra tekhnologii gaza i zhidkogo topliva.
(Benzene) (Grignard reagents)

PETROV, A.D.; ZAKHAROV, Ye.P.; ZAVERYAYEV, Yu.M.

Synthesis of diphenyl alkanes by the Wurtz reaction in a tetrahdrofuran or methylal medium. Zhur. ob. khim. 30 no.9:2838-2846 S '60.
(MIRA 13:9)

1. Institut organicheskoy khimii Akademii nauk SSSR.
(Paraffins) (Furan) (Methylal)

ZAKHAROV, YE. P.

5.3300З

S/079/60/030/06/02/009
B002/B016

AUTHORS: Petrov, A. D., Zaloga, B. D., Malanicheva, V. G., Zakharov, Ye. P., Nefedov, O. M., Tereshchenko, Ye. R., Chel'tsova, M. A.

TITLE: Properties of Naphthene Hydrocarbons of Different Structural Types of the Composition C_{14}-C_{28}

PERIODICAL: Zhurnal obshchey khimii, 1960, Vol. 30, No. 6, pp. 1769-1780

TEXT: Since there are no data available on the most important physical properties of the various alkyl cyclohexanes of the composition C_{14}-C_{20} with branched side chain, the alkyl decalins and the tricyclohexyl alkanes and didecalyl alkanes, an attempt was made here to detect some relationships between heat of combustion by volume and weight, molecular weight, structure, number of naphthene rings, their mutual arrangement in the molecule and the degree of the side chain branching. The following naphthene hydrocarbons were synthesized by hydrogenation of alkyl-aromatic hydrocarbons of the benzene and naphthalene series which were obtained by

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Properties of Naphthene Hydrocarbons of Different Structural Types of the Composition C_{14}-C_{28}

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B002/B016

the authors for the first time by means of magnesium and lithium-organic compounds: 1) alkyl cyclohexanes with quaternary C-atom in the side chain, 2) 1,1-dicyclohexyl alkanes and 1,1,1-tricyclohexyl alkanes, 3) 1,2-dicyclohexyl ethanes, 4) α-alkyl decalins, 5) 1,1-di-(α-decalyl) alkanes. Furthermore some isoparaffins of the carbon number C_{14}-C_{20} and di- and tricyclohexyl alkanes with cyclohexyl rings distributed along the chain were synthesized by the Grignard-Wuertz reaction. Heat of combustion, solidification point, density, kinematic viscosity at 20° and structure of the compounds were determined. The values are summarized in the table. The heat of combustion was determined in a bomb calorimeter according to ГОСТ 5080-55 (GOST 5080-55), and the solidification point according to ГОСТ 1533-42 (GOST 1533-42). The results show that the heat of combustion by volume of compounds with about the same molecular weight is the higher, the higher the number of the naphthene rings contained in these compounds. It was further found that in the 1,1-di-(α-decalyl)-alkanes the solidification point, the viscosity, and the calorific value by volume decrease with increasing molecular weight. In alkyl cyclohexanes with equal branching degree, however, an increase of these properties is

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Properties of Naphthene Hydrocarbons of Different Structural Types of the Composition C_{14}-C_{28}

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observable, which reflects the influence of the mutual arrangement of the rings in the molecules. It was further confirmed that the density, the calorific value by volume, and the viscosity increase proportionally to the number of the tertiary, but especially of the quaternary carbon atoms in the side chains. The synthetic procedure is briefly outlined in the experimental part. Synthesis schemes are given. There are 1 table and 20 references: 7 Soviet and 13 American.

ASSOCIATION: Institut organicheskoy khimii Akademii nauk SSSR (Institute of Organic Chemistry of the Academy of Sciences of the USSR)

SUBMITTED: June 7, 1959

Card 3/3

S/020/60/132/03/36/066
B011/B008

5.3700(B)

AUTHORS: Ponomarenko, V. A., Zakharov, Ye. P., Zadorozhnyy, N. A., Petrov, A. D., Corresponding Member AS USSR

TITLE: On the Peculiarities of the Effect of the Silyl-groups. The Chlorination of the Alkyl-chloro-silicon-hydrides

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 132, No. 3, pp. 619-622

TEXT: In the paper under review the authors continued their investigations on the induction influence of the silyl- and germyl-groups on the properties of the bond neighboring the Si, as well as of that further away from it. In the further development of these investigations they studied the photochemical chlorination of the alkyl-silane-chlorides of the following series: $(C_2H_5)_2SiH_2$, $(C_2H_5)_3SiH$, $(CH_3)(C_2H_5)_2SiH$, $(CH_3)(C_2H_5)(Cl)SiH$, $(C_2H_5)\cdot(Cl_2)SiH$, $(CH_3)(Cl)_2SiH$ and Cl_3SiH. SO_2Cl_2 served for the chlorination under conditions worked out lately by M. G. Voronkov and V. P. Davydova (Ref. 11). Furthermore, the

On the Peculiarities of the Effect of the Silyl-groups. The Chlorination of the Alkyl-chloro-silicon-hydrides

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authors wanted to study the influence of the electric negativity of the chlorine atoms, and of the alkyl- and aryl-groups on the oscillation frequencies of the Si-H bonds in some silicon mono- and dihydrides. The data in Table 1 concerning the "competing" chlorination of the Si-bonds of the hydrides mentioned above proved the expectations of the authors. They expected that the transition from $(C_2H_5)_3SiH$ to Cl_3SiH must retard the chlorination of the Si-bonds rapidly. The series of the relative activity thus corresponds completely to the increasing electric negativity of the silyl-groups (Table 2). It is surprising that only the Si-H-bonds are chlorinated here, but never the C-H-bonds of the alkyl-chloro-silicon—hydrides, although they can, as a rule, also be chlorinated, as known. This differing behavior of both bonds is connected with the specificity of the Si-H-bond and the Si-atom itself. The Si-atom distinguishes itself, contrary to carbon, by an increased electrophily. On the basis of these data, the formation of mainly $(C_2H_5)_2SiHCl$ could be expected at the photochemical radical-

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On the Peculiarities of the Effect of the Silyl-groups. The Chlorination of the Alkyl-chloro-silicon-hydrides

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chlorination of the diethyl-silane with SO_2Cl_2. At the chlorination of the $(C_2H_5)_2SiH_2$ the authors obtained actually only diethyl-chlorine-silane. An analogous result was obtained at the "competing" chlorination of a mixture from $(C_2H_5)_2SiH_2$ and $(C_2H_5)_3SiH$. The separation of the induction-, the steric- and other effects of the group R_nX_{-3n} on the basis of the data of the reactivity is difficult. The data on the oscillation frequencies of the Si-H-bond may to some degree be helpful for the solution of this difficult problem (Refs. 7,8). According to the opinion of the authors it would be best to utilize the group-electric negativities of the silyl-groups for the transition from the oscillation frequencies to the electric negativities. They refer to their previous papers (Refs. 13,14) and state in conclusion that the effective electric negativity of the silyl-group is considered to be the sum of the influences of the 3 substituents connected with Si. The effective electric negativity of other silyl-groups is determined by the summation of the values of the 3 substituents which form the

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On the Peculiarities of the Effect of the Silyl-groups. The Chlorination of the Alkyl-chloro-silicon-hydrides

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corresponding silyl-group. The values of the oscillation frequencies of the Si-H- and Si-D-formations are easily determined on the basis of the equation mentioned. Table 2 shows a good agreement of the computed and the experimentally determined values. The substances produced by the authors are: di-(m-trifluoro-methyl-phenyl)-silane(I), di-p-tolyl-silane (II), bis(γ,γ,γ-trifluoro-propyl)-silane (III), methyl-(m-trifluoro-methyl)-phenyl-silane (IV), methyl-p-tolyl-silane (V), methyl-γ,γ,γ-trifluoro-propyl-silane (VI), methyl-vinyl-silane (VII). There are 2 tables and 14 references, 10 of which are Soviet.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy of the Academy of Sciences, USSR)

SUBMITTED: February 17, 1960

Card 4/4

S/153/60/003/02/16/034
B011/B006

5.3200

AUTHORS: Petrov, A. D., Zakharov, Ye. P.

TITLE: On the Reactivity of Some Tertiary Chlorides and Their Derivatives in the Grignard Reaction

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya, 1960, Vol. 3, No. 2, pp. 301 - 304

TEXT: Giving three examples of Grignard reactions (1) - (3), the authors prove that the yield in tertiary alcohols by this reaction decreases due to an increased reducing effect of the Grignard reagents and increased steric hindrance. Apart from metal halide admixtures temperature increase, and replacement of diethyl ether by other solvents, the correct selection of condensation reagents with respect to structure is of great importance for increasing the yield. Thus, by condensing two molecules of tert.-butyl chloride, hexamethyl ethane is obtained in a yield of only 3%, while reaction of pentamethyl-ethyl bromide with methyl magnesium bromide gives 48% hexamethyl ethane (Ref. 7). Recently, the authors, in collaboration with

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On the Reactivity of Some Tertiary Chlorides and Their Derivatives in the Grignard Reaction

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V. L. Sushchinskiy and T. I. Rogozhnikova (Ref. 8) showed that the branched tertiary alkyl halide 2-chloro-2,4-dimethyl pentane reacts more readily in some organomagnesium reactions than its isomer 2-chloro-2-methyl hexane or even tert.-butyl chloride. In order to compare the reactivities of 2-chloro-2,4-dimethyl pentane and tert.-butyl chloride in other reactions, the authors introduced the two compounds (and some of their derivatives) into the same reactions (see Table p. 302). The yields obtained, show that the reactivities of both these compounds and their derivatives are approximately equal. The authors assume the comparatively high yields obtained in the reactions in which R = iso-C_4H_9 to be due to the high mobility of the functional group caused by the polar effect of the iso-butyl radical. This leads to an "anionization" of the halogen or hydroxyl. This effect evidently compensates a certain decrease in reactivity due to increasing steric hindrance on passing from methyl- to isobutyl radicals. If, in addition, dynamic electron interaction ($\sigma\sigma$-conjugation, Ref. 9) occurs in the substances used by the authors, it is clear that this interaction must affect the reactivities of the compounds containing an

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On the Reactivity of Some Tertiary Chlorides and Their Derivatives in the Grignard Reaction

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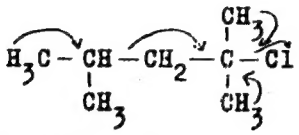
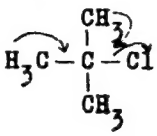
isobutyl radical and the ones containing a methyl radical fairly equally:





By reason of these findings, the authors come to the following conclusions and generalizations: The substitution of the isobutyl radical for the methyl radical in tertiary chlorides, even though steric hindrance increases it, does not reduce the reactivity of the chloride (or some of its derivatives) in Grignard reactions. The authors synthesized α,α,γ-trimethyl valeric acid, its acid chloride, and 2,2,4,4,6-pentamethyl heptanone-3 and determined their properties. These compounds have not been described in publications up to now. There are 1 table and 13 references, 5 of which are Soviet.

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On the Reactivity of Some Tertiary Chlorides and Their Derivatives in the Grignard Reaction

30659

S/153/60/003/02/16/034
B011/B006

ASSOCIATION: Moskovskiy khimiko-tekhnologicheskiy institut im. D. I. Mendeleyeva; Kafedra tekhnologii neftekhimicheskogo sinteza (Moscow Institute of Chemical Technology imeni D. I. Mendeleyev, Chair of Technology of Petroleum-chemical Synthesis)

SUBMITTED: July 12, 1958

Card 4/4